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For the information of S+P - RO
from Insect & Disease Control, Clearwater
National Forest.

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G. C. Franc

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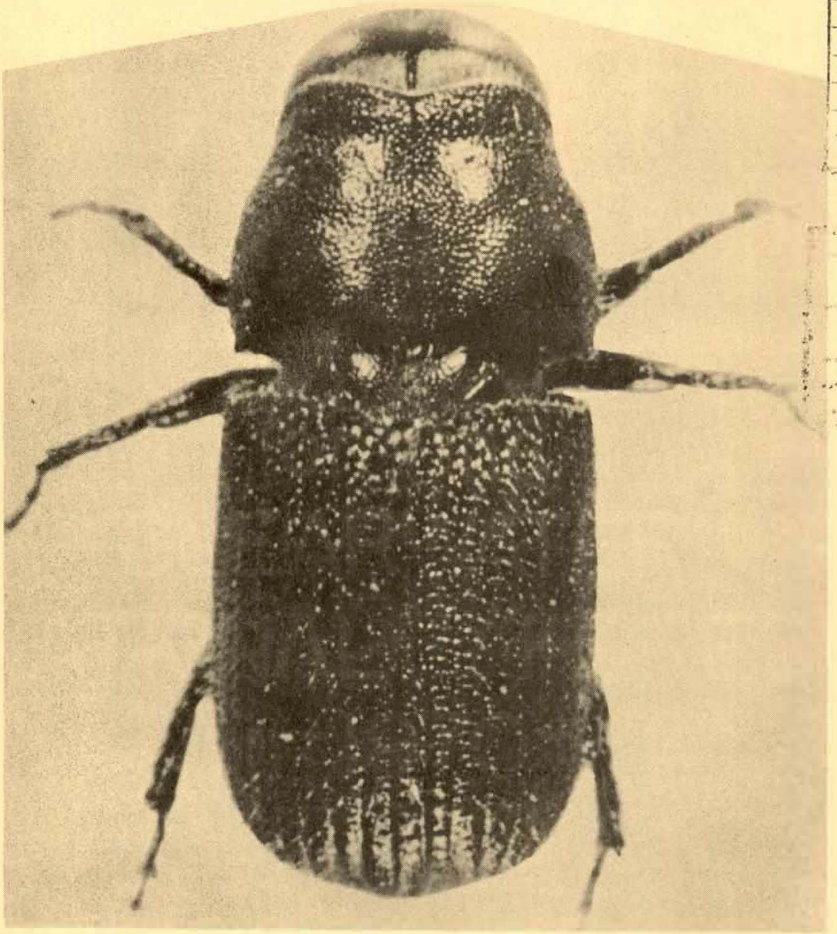


on the CLEARWATER NATIONAL FOREST -1970-

Insect and Disease Conditions on the Clearwater National Forest

Mountain Pine Beetle

Mountain Pine Beetle (Dendroctonus ponderosae) activity on the Clearwater National Forest appears to be greater this year than it was in 1968 and 1969. Insect and Disease surveys made in mature stands in the Pot Mountain special study area last fall showed up to 7.6% of the old, overmature white pine were infested. The 1969 infestation rate for this same area was 3.6%. The average infestation rate for most of the white pine stands along the North Fork of the Clearwater has been between 3 and 4% per year. White pine on the Tepee Creek sale area on the Canyon District were also found to have a very high rate of beetle infestation. Only the high risk cutting units were examined in this area and the infestation rate of just over 10% is not representative of the whole area.

Considerable progress has been made by Boyce Thompson Institute in their effort to develop an effective Mountain Pine Beetle population attractant. Most significant was a reduction in the cost of the attractant itself. In addition, a simple but effective trap has been developed. As a result, the Clearwater National Forest plans to cooperate with BTI in placing 1000 to 1500 traps on National Forest land in 1971.

White Pine Blister Rust

Time has just about run out for much of the remaining overmature white pine in the Canyon Block of the Clearwater National Forest. The rapid decline of white pine in these stands to White Pine Blister Rust (Cronartium ribicola) was once again pointed out by the results of Insect and Disease Surveys made in the Aquarious and Pot Mtn. special study areas on the Canyon and Bungalow Districts. Of the total white pine examined on these areas, almost one half were snags. Over one half of the remaining live white pine were spike topped by blister rust.

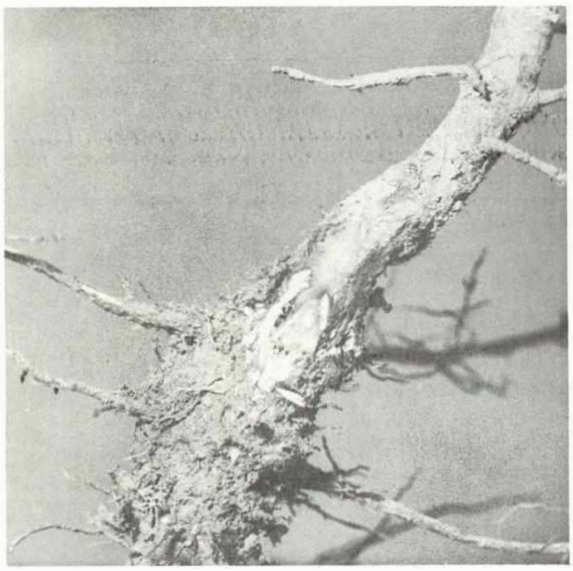
The Clearwater National Forest has, for the past four years, been participating in a program to develop rust resistant white pine. One thousand rust free candidate trees have been located on the Clearwater and this year 130 of these trees were controlled pollinated with tester pollen provided by the Forestry Science Laboratory at Moscow. This is the first step in determining the actual resistance of candidate trees.

Out plantings of rust resistant stock developed in the first phase of the rust resistant tree program will be made in the Jaype experimental plots on the Pierce District in the spring of 1972. This site is presently being logged and will be prepared for planting.

Research to determine the effectiveness of silvicultural methods for reducing blister rust losses is being carried on by the Intermountain Forest and Range Experiment Station and the Pierce District. Pruning and thinning plots have been established in the Johnson Draw plantation near Musselshell.

Dwarfmistletoe (Arceuthobium spp.) on Western Larch

Controlled pollination in a Blister Rust (Cronartium ribicola) resistant white pine



The roots of a Douglas-fir seedling infected with Armillaria Root Rot (Armillaria mellea)

Western Budworm

The Western Budworm (Choristoneura occidentalis) continues to increase its range on the Clearwater National Forest and incipient infestation can be found virtually everywhere. At the same time, the intensity of the infestation in some previously heavily hit stands has declined.

The flight of adult moths was very heavy in late July and early August. On one warm evening during the first week of August, budworm moths, literally by the millions, were attracted to street lights, et al, in Pierce.

Budworm damage continues to be severe in the Upper Fish Creek area of the Lochsa District. Grand fir in this area has had 4 successive years of budworm defoliation. This has had an adverse effect on the cone crop of Grand fir seed trees in the Upper Fish Creek sale area and necessitated a direct seeding project last fall to take advantage of recently completed site preparation on 200 acres.

The Clearwater National Forest has proposed a budworm control project for heavily infested stands along the Pierce and Lochsa District boundary. The project calls for the use of Zectran to be applied at low volumes and if approved as submitted, involves some 64,000 acres in the Yoosa, Eldorado and Fan Compartments on the Pierce District and in Obia, Fish, Canyon and Pete King Compartments on the Lochsa District.

Larch Casebearer

Following a slight decline in population last year, the population levels of the Larch Casebearer (Coleophora laricella) appear to have returned to "normal". Discoloration due to the casebearer was very conspicuous on the Clearwater in June.

The Clearwater cooperated with the Pest Control Branch of the Division of State and Private Forestry in the collection of larch branches to be used in a study of native and introduced casebearer parasites. The study showed that the introduced parasite Agathis pumila had in fact become established on the Clearwater but as yet has exerted little or no control on the casebearer. Several native parasites were found and the study will be continued to determine their effect on the casebearer.

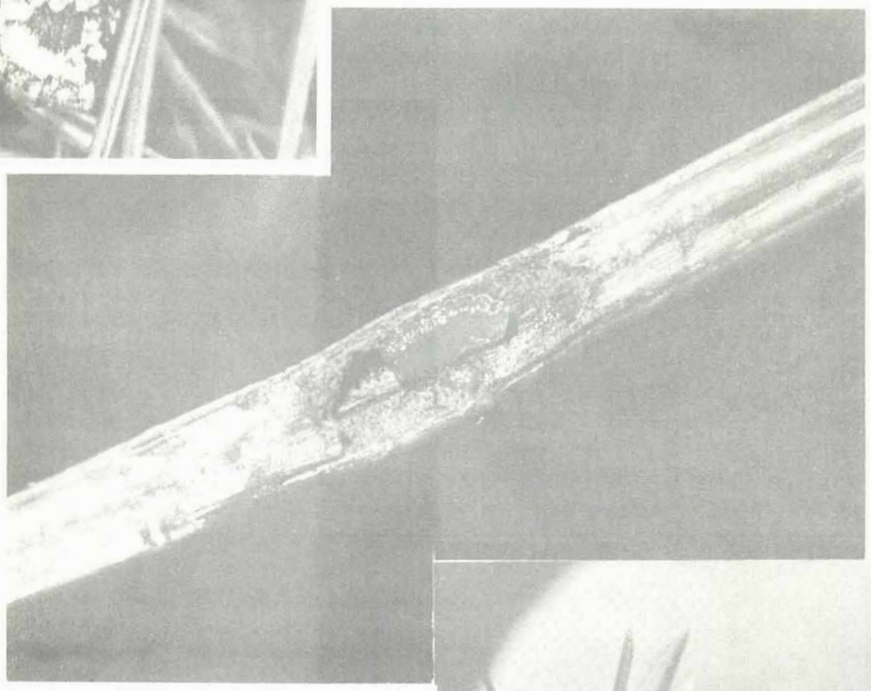
Dwarfmistletoe

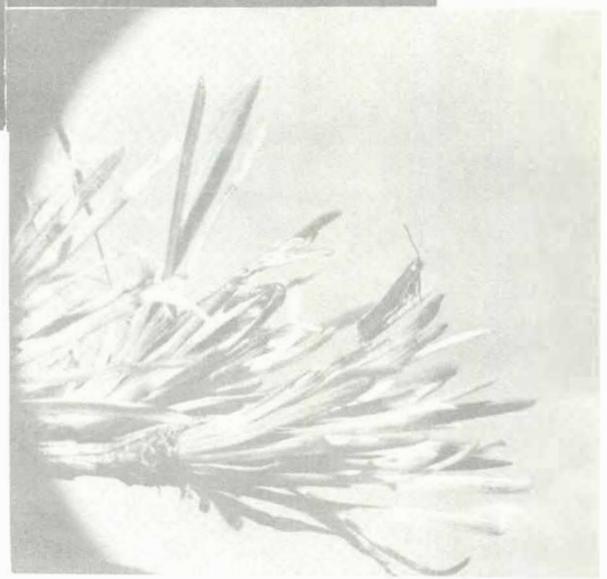
Dwarfmistletoe (Arceuthobium spp.) can be found in most residual Western Larch stands on the Clearwater. Mistletoe is also common in Lodgepole Pine on the Powell and Kelly Creek Districts. None of these stands meet the criteria for mistletoe control work. Mistletoe damage was observed on about one half of the Larch examined in the Aquarious and Pot Mtn. special study areas. The average mistletoe rating based on the 6-class mistletoe rating system developed by Region Three was between 2.5 and 3.

Spruce :

An adult Western Budworm
(Choristoneura occidentalis)

The larvae of the Douglas-fir Needle Midge (Contarinia pseudotsugae). Part of the needle has been removed to show the feeding inside.





An adult Larch Casebearer
(Colephora laricella)

Armillaria Root Rot

Of major concern is the apparent increase in Armillaria Root Rot (Armillaria mellea). This disease attacks all species but is especially damaging to overstocked sapling and pole size Douglas-fir. Root Rot is nonselective and kills desirable crop trees as well as excess trees. Infection centers with up to 20 or 30 dead or infected trees were found in one stand of Douglas-fir and Grand fir reproduction on Pot Mtn.

Bark Beetles

Both the Fir Engraver Beetle (Scolytus ventralis), which hits Grand fir, and the Douglas-fir Beetle (Dendroctinus pseudotsugae) are found in endemic conditions on the Clearwater. Grand fir mortality due to the engraver beetle was quite conspicuous in the Browns Creek area near Pierce. The aerial detection survey made in August revealed some Douglas-fir beetle activity in White Sands Creek on the Powell District.

Rusts

Spruce Needle Rust, genus Chrysomyxa, was observed in the vicinity of Elk Summit on the Powell District. A disease known as yellow witches broom or fir broom rust (Melamsorella caryophyllacearum) is becoming more and more common in Grand fir. This may be due to an increase in its alternate host chickweed which becomes established where soil disturbance has occurred. Western Gall Rust (Peridermium harknessii) is common in Lodgepole Pine and Ponderosa Pine.

Douglas-Fir Needle Midge

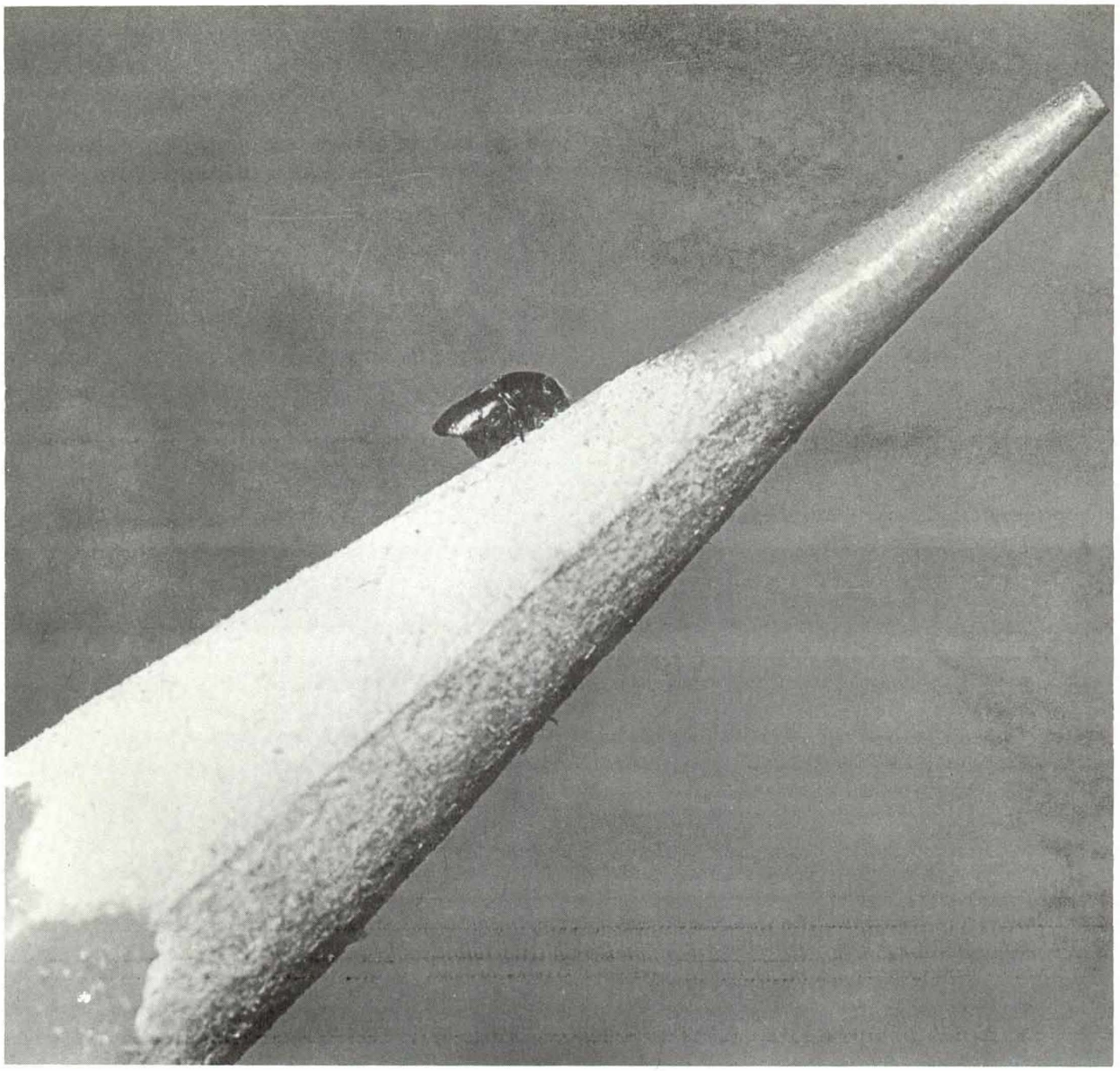
A Douglas-fir plantation in the Cavendish area was heavily damaged by Douglas-fir Needle Midge (Contarinia pseudotsugae). This minute insect feeds inside the needles of the host tree causing them to become discolored and eventually drop off. This insect was previously reported on the Clearwater in 1962 and 1963.

Other Insects and Diseases

The Red Turpentine Beetle (Dendroctonus valens) was found in Ponderosa Pine in the Nine Mile plantation on the Lochsa District. This bark beetle is normally secondary and in this instance it attacked trees damaged by a controlled burn touched off last spring in an effort to improve wildlife winter range. Mortality was caused primarily by fire damage.

A farmer on the Gilbert Grade reported an outbreak of bark beetles in Ponderosa Pine on his land. Upon investigation, the beetle was identified as Pine Engraver Beetle (Ips pini) which had built up in unburned logging slash in the area. This is a situation which is all too frequently repeated in the Ponderosa Pine type.

Spruce reproduction is being attacked by the Spruce Shoot Weevil (Pissodes engelmanni). The weevil attacks the terminals of sapling size spruce. Eventually the terminals are killed and the young tree develops a crooked or forked top. Damage of this sort is common along Beaver Cr. and Washington Creek.



An adult Fir Engraver Beetle (Scolytus ventralis) magnified 10 times.

Larch canker or "carrot top of larch" (Phomopsis pseudotsugae) is still active on the Clearwater but less noticeable than in the past. The incidence of this disease in larch stands on the Clearwater is much lower than it is in the northern forests of Region 1. Another fungus of the genus Phomopsis is responsible for killing branches and occasional tops on grand fir.

No observations were made this year of Spruce Bark Beetle (Dendroctonus ~~obesus~~ rufipennis). Nor was the aphid caused condition known as "droopy tip" of Grand fir observed. Damage by both of these insects occurred on the Clearwater last year.